NGC8200 Start-Up Guide

TOTALFLOW

MEASUREMENT & CONTROL SYSTEMS

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Inquiries regarding this manual should be addressed to ABB Inc., Totalflow Products, Technical Communications, 7051 Industrial Blvd., Bartlesville, Oklahoma 74006, U.S.A.

Introduction

This is a quick start guide designed for typical installations only. It is recommended that inexperienced technicians consult the *Totalflow® NGC8200 User's Manual* for more detailed information while doing the installation and start-up. Scan through the guide to see what information is available before you begin the installation. If for some reason, you have questions that are not answered in this guide or your other documentation, call your local Totalflow representative or call the number listed on the back page of this guide. Alternate methods of installation are acceptable and may save time, however, it is recommended that inexperienced technicians perform these procedures in this order.

Unpack and inspect the NGC8200 (NGC) and optional equipment if purchased. Inspect all parts and pieces for damage and missing or incorrect components.

Before you Begin

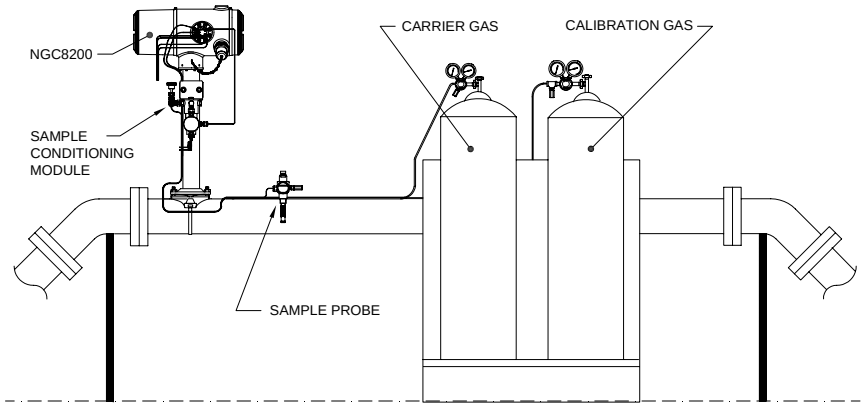
The NGC may be configured with a multitude of optional equipment. Please see the *NGC8200 User's Manual* for optional equipment installation instructions.

If the Optional Equipment Unit (OEU) was purchased to house the Power Supply, Battery and/or Communications, this should be installed in a Division 2 or General Purpose area prior to NGC installation. Specific instructions may also be found in the *NGC8200 User's Manual*. Communication wiring information may be found in this guide following the Installation Section.

Basic Installation

Step 1 **Locate suitable installation site.**

NGC should be located close to the Sample Probe to minimize sample line length. See Table below for Transport Tubing distances and lag times.



1/8" Transport Tubing Lag Time Considerations

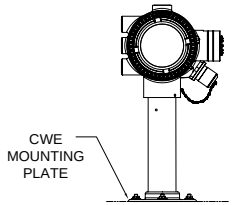
Distance	Conditioning Module	Seconds
10' (3.05 m)	2102023-XXX	36
20' (6.10 m)	2102023-XXX	48
30' (9.14 m)	2102023-XXX	60
50' (15.20 m)	2102024-XXX	16
100' (30.48 m)	2102024-XXX	23
150' (45.72 m)	2102024-XXX	30
200' (60.10 m)	2102024-XXX	36
250' (76.20 m)	2102024-XXX	42
300' (91.44 m)	2102024-XXX	50
350' (106.68 m)	2102024-XXX	56
380' (115.82 m)	2102024-XXX	60

Step 2 **Mount the unit.**

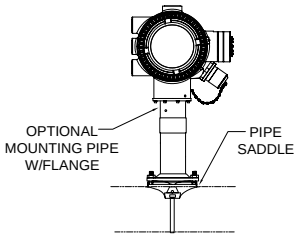
Mount the unit on a "Meter Run", "Wall Shelf", Stand-Alone Pipe or inside a "Cold Weather Enclosure".

Note: NGC should not be connected to any section of pipeline where cathodic protection exists.

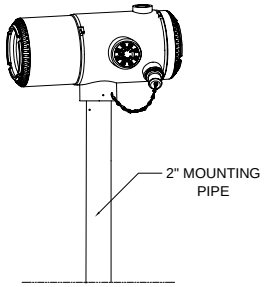
The NGC has a grounding lug on the mounting neck of the enclosure. This lug should be tied to a good earth ground with no smaller than #12AWG wire.



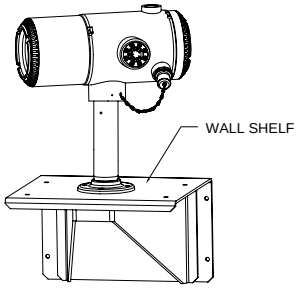
COLD WEATHER ENCLOSURE MOUNTED



PIPE RUN MOUNTED



STAND-ALONE PIPE MOUNTED



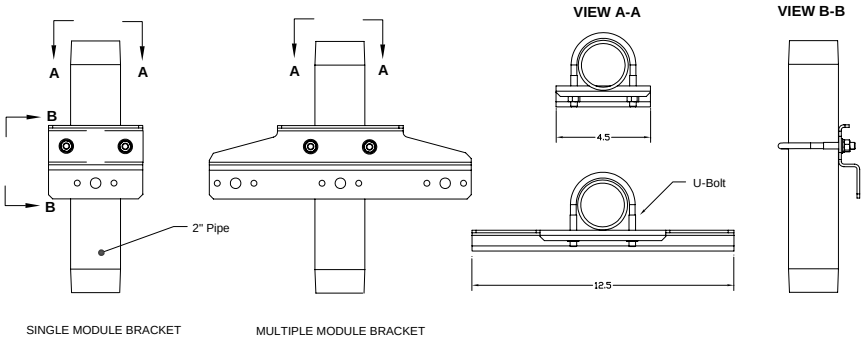
WALL SHELF MOUNTING

Step 3 **Install the Sample Conditioning Bracket, Sample Conditioning Modules and connect to Feed-Through Assembly.**

IMPORTANT: A Particulate Filter with Liquid/Vapor Separator Sample Conditioning Module is strongly recommended. Operating the NGC without a Sample Conditioning Module can allow liquids and particulates to contaminate columns, damaging unit and voiding warranty.

If none are required, connections are made directly to the Feed-Through Assembly.

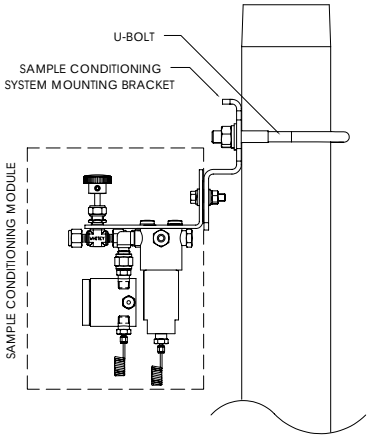
3A Mount Sample Conditioning Bracket on pipe.



SINGLE MODULE BRACKET

MULTIPLE MODULE BRACKET

3B Mount Sample Conditioning Modules on Sample Conditioning Bracket.



Step 4 **Install the Sample Probe(s).**

Totalflow strongly suggests a Temperature Compensating, Pressure Regulating Sample Probe be used. Refer to any manufacturer's recommendations supplied with probe. If Sample Probe is to be mounted in a section of pipe where cathodic currents exist, you should install isolators in Sample Tubing between probe and NGC.

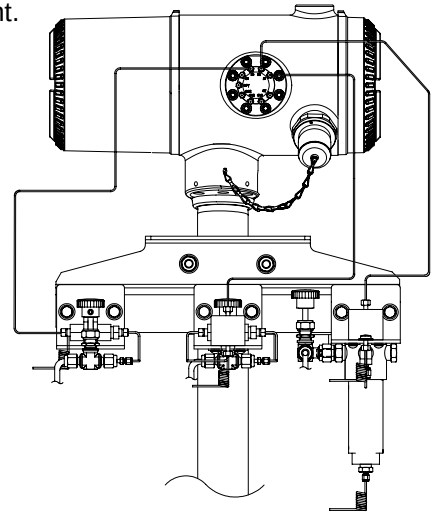
NOTE: API 14.1 recommends using a Strouhal number to determine probe lengths, therefore reducing the effects of resonant vibration. Please refer to API standards for additional information.

Step 5 **Connect Sample Streams.**

IMPORTANT: Remove sealing screws from input ports to connect tubing. Unused ports **MUST** remain sealed to keep moisture from entering manifold and potentially damaging instrument.

5A Connect tubing between Sample Probe and Conditioning Modules. See Precautions below.

5B Connect Tubing between Conditioning Modules and Feed-Through Assembly. Purge sample gas through tubing during connection.



Precautions:

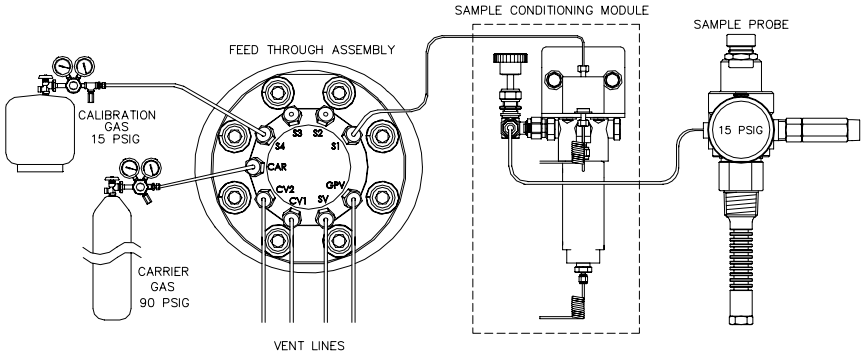
1. **DO NOT use any type of plastic, Teflon or Teflon Lined Braided Steel tubing.** Use only good quality clean Stainless Steel Chromatographic Grade Transport Tubing for carrier, calibration gas and sample lines. Use of poor quality stainless steel tubing will give unsatisfactory results.
2. Use only High Purity 99.995% grade helium or better for carrier.
3. Sample Transport Tubing Lengths: When Sample Conditioning Modules are used, the sample transport tubing run can be up to 50 feet. Lengths longer than 50 feet must adhere to the rules of calculated lag time per the "Calculating Lag Time" section in the Installation section of the *NGC8200 User's Manual*.

   If a Sample Conditioning Module is not being used, the sample transport tubing should be 1/16 inch tubing and no longer than 10 feet.
4. Purge all lines prior to connecting to the NGC.
5. Suggested calibration blend component concentrations:

Component	% Blend		Component	% Blend		Component	% Blend
N2	2.5%		C3	1.0%		iC5	0.1%
CO2	1.0%		iC4	0.3%		nC5	0.1%
C1	89.57%		nC4	0.3%		C6	0.03%
C2	5.0%		NeoC5	0.1%			

Step 6 **Connect Vents, Carrier and Calibration Gas Lines.**

A number of installation kits are available from Totalflow, call the number listed on the back page of this guide for more information.



6A Remove sealing screws and connect Vent Tubing to Feed-Through Assembly Column Vent 2 (*CV2)*, Column Vent 1 (*CV1)*, Sample Vent (*SV)* and Gauge Port Vent (*GPV)* ports. All 4 Vents MUST be open. Use vent kits included with unit. Position Vent

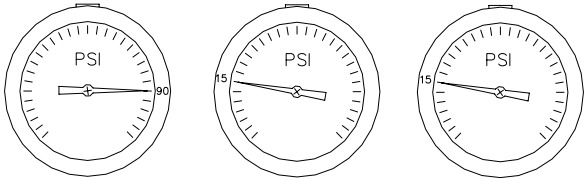
tubing in a downward direction so that moisture does not accumulate in the tubing. Units mounted inside a building may require vents to be extended outside.

IMPORTANT: Remove plastic caps from ends of the purge coil on any Sample Conditioning Module(s).

6B Connect Carrier (CAR) and Calibration Gas (S4 default) to Feed-Through Assembly. Purge gas through tubing during connection.

NOTE: If you use Pressure Regulators that include a built-in Low Pressure Switch, these can be connected to digital inputs on the NGC. However, to meet the Div 1 certification, you must go through a barrier located in a safe area. At the time of this printing, a barrier was not available from Totalflow, but was in development. If used, the Carrier bottle connects to Digital Input 1 (DI1) and the Calibration Blend bottle to Digital Input 2 (DI2). See termination board drawing on page 17.

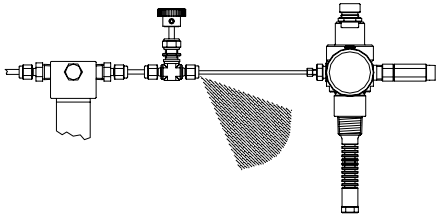
Step 7 **Set Carrier Regulator at 90 PSIG, Cal. Blend and Sample Probe Regulators to 15 PSIG and open valves.**



Step 8 **Check for Leaks.**

Leaks in the Carrier, Sample or Calibration Gas Lines will produce unsatisfactory results from the unit.

8A Close tank valves and monitor gauges on regulator. If pressure drops, a leak is present.



8B Locate and repair all leaks.

8C Continue until all leaks have been corrected and regulator gauges maintain pressure.

8D Leave sample, carrier and calibration gas valves open.

Step 9 **Install Power Supply.**

Install the power source and complete all power wiring before continuing. Reference any power wiring drawings supplied with the unit plus any corresponding instructions in the *Installation* section of the *NGC8200 User's Manual*.

Step 10 **Adjust voltage at power source.**

To allow for maximum distance between the NGC and the power source, adjust the no-load output at the power source to 14.5 to 15 VDC for 12 Volt systems and approximately 25 VDC for 24 Volt Systems. This assumes one of the following wire sizes is used and the optional auxiliary heater is not used. The maximum wire size is 12 AWG (2.5MM^2).

Disconnect power temporarily prior to beginning the next step.

	12 Volt System		24 Volt System	
Wire	Max. Length (Ft)	Max Length (M)	Max. Length (Ft)	Max Length (M)
12 AWG	296'	90 M	511'	155 M
14 AWG	185'	56 M	320'	97 M
2.5 mm^2	224'	68 M	387'	117 M
1.5 mm^2	137'	41 M	237'	75 M

Step 11 **Apply DC power to the Termination Board J1 Terminal and check voltage.**

Remove J1 Terminal from NGC Termination Board and field wire Power (+) to Pin 1 and Power (-) to Pin 2. Reinstall J1 Terminal on Termination Board. Apply power to unit, the oven will begin heating providing maximum load conditions. Due to the fast pulsing action of the oven circuit, the true voltage cannot be read with a traditional voltmeter. However, using a voltmeter verify that you can read a minimum of 11.5 VDC at J1 of the NGC termination board for 12 Volt systems or a minimum of 25 VDC at J1 for 24 Volt systems. Voltages must **NEVER** drop below 10.5 VDC on the 12 Volt system, or 21 VDC on the 24 Volt system.

Maximum Instantaneous Current for 12 Volt system should be between 4 Amps (No Auxiliary Heater) and 8.2 Amps (with Auxiliary Heater). Maximum Instantaneous Current for 24 Volt system should be between 2.2 Amps (No Auxiliary Heater) and 5.2 Amps (with Auxiliary Heater). Maximum Instantaneous Current is usually experienced at start-up.

Start-Up

Step 12 **Install the PCCU32 software provided on CD.**

12A Insert PCCU32 disk into laptop's CD drive. The installation process should kick-off automatically. If not, go to *Start*, *Run* and type *D:\Disk1\setup.exe* (D being the CD Drive designation) and follow screen prompts. Enter your Name, Company, Destination Folder (PCCU_NGC recommended), and Program Folder.

12B One of the *Install Options* will ask if you want to install *ActiveSync*. If the local connection on your NGC is USB, you will

need ActiveSync to use the *Local* connection. This is the outside connector on your NGC with an explosion proof cap. You may already have *ActiveSync* installed if you communicate with a PDA device. If you have *ActiveSync* and it's an older version, checking the *Install ActiveSync* box will give you the opportunity later in the install procedure to update your current version.

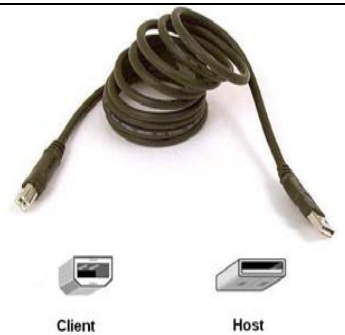
12C A subsequent option's screen will allow you to select the *Local Port* used for the *Local* connection. If you make the wrong choice, it can be changed later in PCCU's *System Setup*.

- *Use USB Port* – Select this option if your *Local* connection is USB.
- *Use Serial Port* – If your *Local* connection is the *Serial* port, the external connection on your NGC is a round military type connector as opposed to a USB connector.
- *Keep Current Port* – If PCCU is currently installed on your computer and you are simply upgrading to a newer version, select this option to keep your current *Local* port setup.

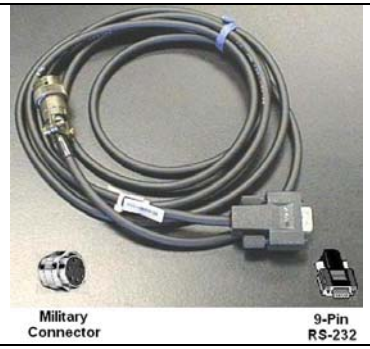
Step 13 **Connect Local Communications Cable.**

The Local Communications cable will either have a USB connector or a round RS232 military style connector on the NGC end. Connect to the appropriate communication port on PC (default is COM1) for serial RS-232 or any USB connector for USB and then to the MMI connector on the NGC. If using USB and you get a dialog box asking you to set up a Partnership, simply click the *Cancel* button, click *OK* and then *Close* the third screen.

MMI Cables



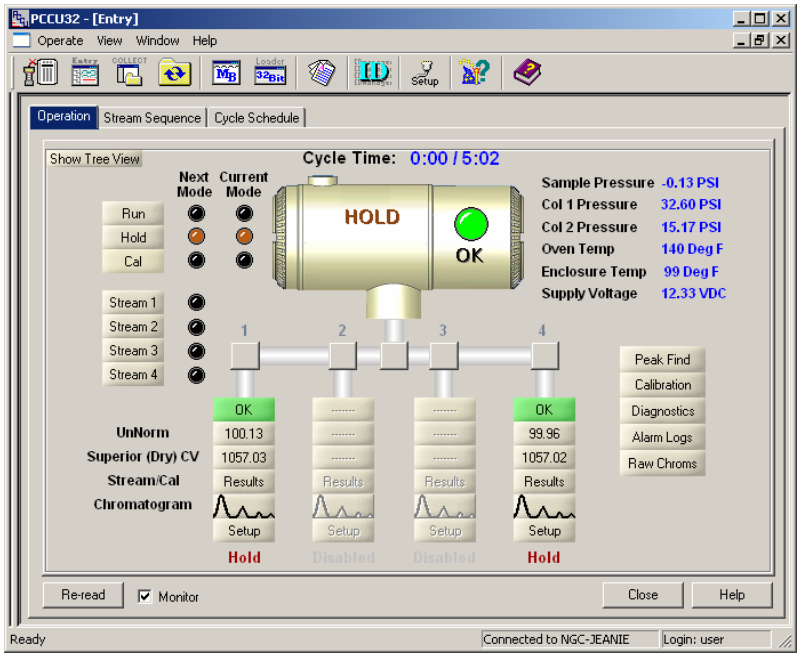
USB Cable P/N 1801800-xxx



RS-232 Cable P/N 2015240-xxx

Step 14 **Start PCCU32 Software.**

14A Click the *Start* button, select *Programs*, select *Totalflow PCCU_NGC* (or correct program folder if changed during installation), and then select *PCCU32* to display the initial screen.



***Initial NGC* Screen**

14B If you get a communication's error, click on the *Setup* Icon along the top of the screen and verify the *PCCU Com. Port*. If using USB, this should indicate *USB*; if not click on the down arrow and scroll down and select *USB*. If you are using serial communications with the round connector on the NGC end, select the communications port being used (COM1, etc.). When finished, *Close* the *Setup* screen.

TIP: If the Invalid Security Code screen should appear, enter four zeros (0000) for the new code and click OK. The NGC should have defaulted to 0000 on start-up.

Step 15 **NGC *Start-up Wizard*.**

When the PCCU establishes a connection with the NGC, the *NGC Start-up Wizard* starts automatically. This will only happen the first time you connect to the unit or if you can't finish for some reason, the *Start-up Wizard* will automatically start again when you re-connect. This happens until you complete the *Start-up Wizard*. After Start-up, you can still access the *Start-up Wizard* under the *Help* menu on the initial (Local Connect) screen.

The wizard will walk you through the process of entering all the necessary information to get your NGC up and running. Each screen has an associated Help screen that will automatically display when you move from screen to screen. Click on the *Help* or the *Entry* screen to bring it to the front as needed. The initial Help screen includes a *Read Me First* area at the top of the screen which you should read thoroughly.

As you are entering information, the NGC's oven will be warming up and diagnostics will be running. The diagnostics cannot finish until the oven is up to temperature and stabilized and the Start-up procedure cannot be finished until the diagnostics are finished. Depending on the ambient temperature, this could be as quick as 30 minutes or an hour or more.

One thing to keep in mind is that during initial Start-up, all streams are *Disabled*. The last phase of the diagnostics is *Stream Tests* and streams that have input pressure are re-enabled. Therefore, if a stream is going to be used, it should be plumbed in and sample pressure applied so that the stream can be tested during Start-up. However, a stream can always be added and *Enabled* at a later date.

15A Enter The Information in the *Start-up Wizard*.

Step through all the screens in the *Start-up Wizard* filling in the required information. Be sure to put the unit in *Run* mode as instructed and allow the unit to run at least 8 hours or overnight if possible.

Step 16 **Calibrate the NGC.**

After the unit has run for a minimum of 8 hours, its time to calibrate it.

16A Connect the MMI cable to the unit and start PCCU. Remember if you are using USB and see a screen asking about a Partnership, simply cancel or close the screens.

16B On the *Operation* screen, the unit should be in *Run Mode*. Click the *Hold* button beside the *Next Mode* indicators. The *Next Mode* indicator will illuminate and the unit will go into *Hold* mode at the end of the cycle. You can go on to the next step without waiting for the end of cycle.

16C On the *Operation* screen, click on the *Calibration* button at the side of the screen which will display the *Setup* tab for *Calibration*. You verified or made changes to a scaled down version of this screen in the *Start-up Wizard*. Let's verify some calibration information before we start the actual calibration:

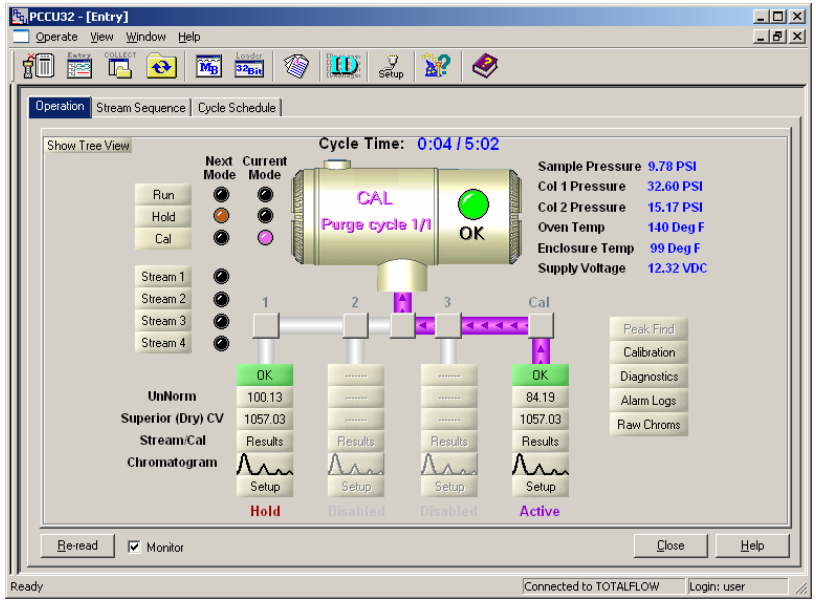
- Verify that the calibration stream you're using which is now called the *First Calibration Stream* is correct; change if needed.
- There are default values in the *Calibration Cycles Average* and in the *Purge Cycles* windows. You can change these values now even if you changed them during the *Start-up Wizard*.

- Verify the values in the *% Blend 1* column matches your calibration blend bottle and *Total Mole %* is 100. If not 100% and all components are correct, modify Methane (C1) to get 100%.

16D If you made any changes in *Calibration Setup*, click the *Send* button, click the *Re-read* button to verify changes, then click the *Close* button on *Calibration Setup*.

16E On the *Operation* screen, the unit probably indicates by now that it is *Hold Mode* if not, wait until it finishes the cycle and goes to *Hold*.

16F Click the *Cal* button on the left side of the screen and the *Current Mode* indicator for *Calibrate* will illuminate, plus you will get a visual indication of the Calibration stream flowing as shown below. The *Next Mode* should still indicate *Hold* and the unit will go back into *Hold* Mode when the calibration process is finished. If using 2 *Purge* cycles and 3 cycles to average, the calibration process will take approximately 25 minutes.



***Operation* Screen (Cal Mode)**

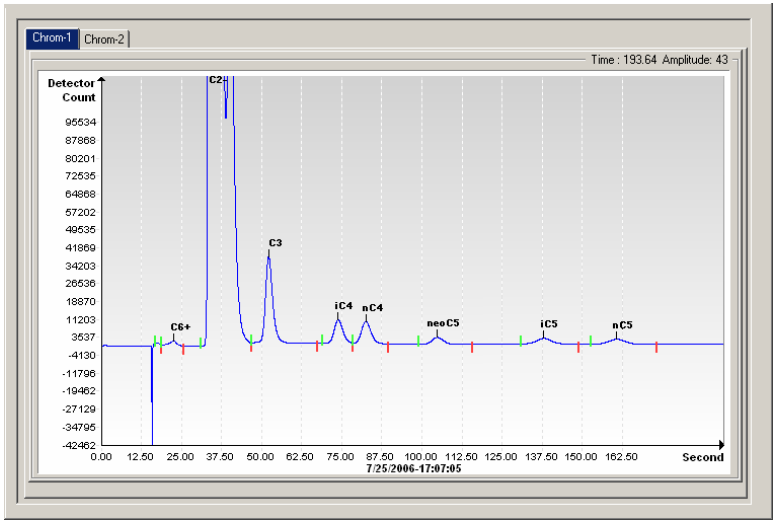
NOTE: On the *Operation* screen, if *Enabled*, a stream will show information on the stream blocks as shown by stream 1 above and this is always process stream data for that stream. If it's a Calibration stream only, the data shown on the blocks is still process stream data and not Calibration data and therefore not relative. Also, note that if *Enabled*, a Calibration stream is grayed out during Calibration.

Step 17 Verify Calibration Data

In this step we assume the unit has completed calibration and gone back to *Hold* mode. Now let's verify a few things before we put it in *Run Mode*.

17A Click on the *Peak Find* Icon button located on the right side of the *Operation* screen. A chromatogram will load at the bottom of the screen which is the last cycle of the calibration stream. There will be a delay as the data downloads. There is a tab for *Chrom-1* (Heavy Components) and *Chrom-2* (Light Components). Chrom-1 is displayed first, so we'll start there. If no Chromatograms, click the *Re-read* button.

17B Look at the date/time below the chromatogram. This time should coincide with the start of the last cycle of the calibration process that you just ran. This means that the calibration data was accepted; no alarms etc. If this is an old date & time, most likely from when it was calibrated in the factory, the new calibration data was not updated for some reason. In this case, there should have been an alarm show up on the *Operation* screen.



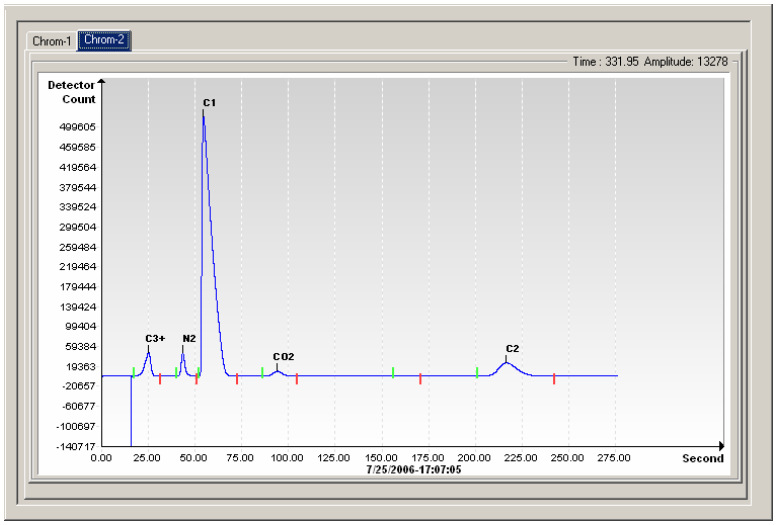
Chrom-1 (Heavies)

17C Verify that you have 7 peaks labeled; C6+, C3, iC4, nC4, neoC5, iC5, and nC5. The second double-looking peak from the left is a composite peak of C2- and may or may not be labeled, but is not used in calculations.

17D Place the vertical line of the cursor over the little tick mark on nC5 and verify the time in the upper right hand corner of the Chrom is approximately 160 seconds. It is not critical that it be right on 160 seconds, but should be within 3 or 4 seconds.

17E Click on the Chrom-2 tab and verify that you have 4 peaks labeled; N2, C1, CO2, and C2. The first peak on the left is a composite peak of C3+ and may or may not be labeled, but is not used in calculations. There could be trace amounts of other components in your calibration blend as indicated by gates with no component label as shown below between CO2 and C2.

17F Place the vertical line of the cursor over the little tick mark on C2 and verify the time in the upper right hand corner of the Chrom is approximately 220 seconds. This is not critical that it be right on 220 seconds, but should be within 3 or 4 seconds.



Chrom-2 (Lights)

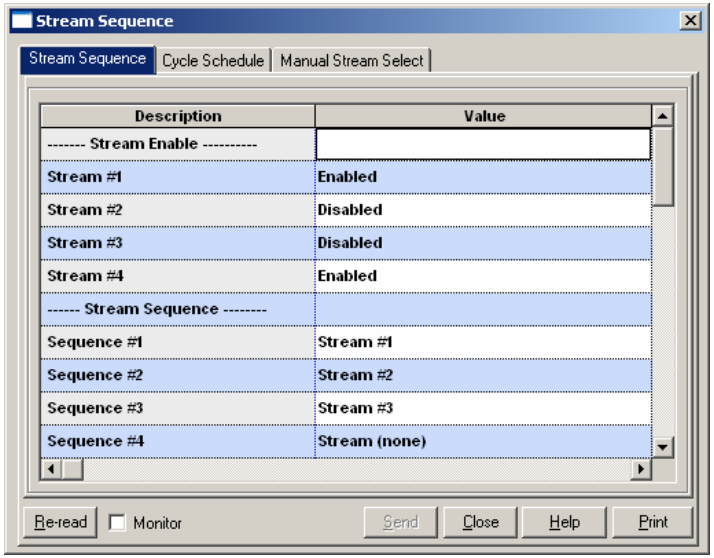
Step 18 Verify Stream Sequence

You verified the stream sequence during the *Start-up Wizard*, but you may want to check now to see if the streams that you want to run automatically really are set up to run automatically.

For a stream to automatically sequence, it must be *Enabled* and be in the *Stream Sequence*. The *Calibration* stream will function without being *Enabled* and shouldn't be *Enabled* or be in the *Stream Sequence* unless you want to run cycles on the *Calibration* stream.

One reason that you may not want the Calibration stream *Enabled*, is that when *Enabled*, a stream displays information such as *Unnormalized Total*, *Superior CV*, etc., on the front of the *Operation* screen. This information is process stream information and not calibration stream information, so this may be confusing.

After confirming the streams, close the *Stream Sequence* screen.



Step 19 **Put the Unit in Run Mode**

On the *Operation* screen, click the *Run* button and the *Current* and *Next Mode* indicators for Run should illuminate. The unit will now run the streams specified by the *Stream Sequence* screen. The unit will run in this mode until manually put in a different mode or automatically put into the *Calibration* Mode by the *Calibration Schedule*. To setup an automatic calibration schedule, click on the *Calibration Icon* button located on the side of the *Operation* screen and then select the *Calibration Schedule* tab. After a scheduled Calibration, the unit will return to its normal stream sequence.

19A Allow at least the first stream to complete and verify that the Unnormalized total is 100% +/- .5 (99.5 – 100.5).

At this point you are through with setting up the NGC as it relates to processing analysis data. If you need to do wiring for communications, there is some limited information in the Communications section of this guide. For additional information, see the *NGC 8200 Users Manual* or the Help topic for each communication port. Port information can be viewed by displaying the tree view and clicking on a port under communications.

Remote Communication

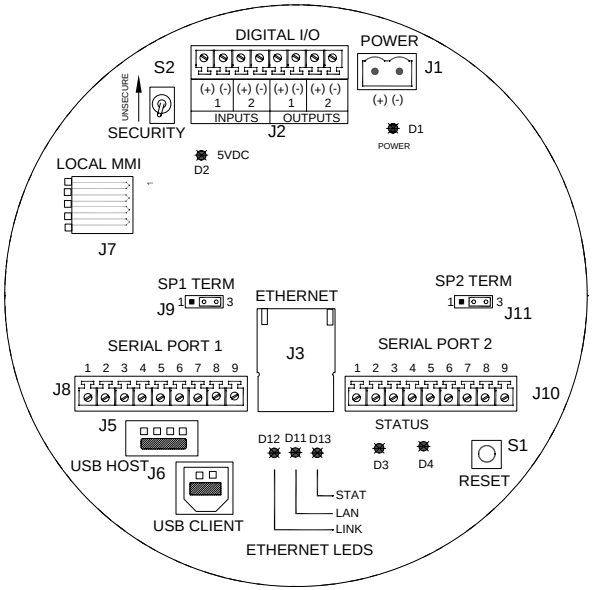
To communicate with the Host, the NGC defaults to Comm 1 and has the protocol defaulted to *Totalflow Remote*. This protocol deals primarily with communications between the NGC and Host (typically WinCCU). Comm 2 is defaulted as an NGC Interface, communicates via Modbus and functions as a Modbus Slave.

Both Communication ports (Comm 1 and Comm 2) can function as RS232, RS422 or RS485. The following table details the connections for remote communications.

Comm 1 and Comm 2 Pin-Outs/Terminations

	RS232	RS485	RS422
PIN	**COMM 1 (J8)**	**COMM 1 (J8)**	**COMM 1 (J8)**
1	Power Out	Power Out	Power Out
2	Ground	Ground	Ground
3	Switched Power Out	Switched Power Out	Switched Power Out
4	Operate	Operate	Operate
5	Not Used	RRTS	RTS
6	Request To Send	Bus +	Transmit Bus +
7	Transmit Data	Bus -	Transmit Bus -
8	Receive Data	No Connection	Receive Bus +
9	Clear To Send (CTS)	No Connection	Receive Bus -
	COMM 2 (J10)	**COMM 2 (J10)**	**COMM 2 (J10)**
1	Power Out	Power Out	Power Out
2	Ground	Ground	Ground
3	Switched Power Out	Switched Power Out	Switched Power Out
4	Operate	Operate	Operate
5	Not Used	RRTS	RTS
6	Request To Send	Bus +	Transmit Bus +
7	Transmit Data	Bus -	Transmit Bus -
8	Receive Data	No Connection	Receive Bus +
9	Clear To Send (CTS)	No Connection	Receive Bus -
TERMINATIONS		**Comm 1 (J9)**	**Comm 2 (J11)**
First or Intermediate Unit (RS-485)		Pins 2–3	Pins 2–3
Last or Only Unit (RS-485)		Pins 1–2	Pins 1–2
RS232		Pins 2–3	Pins 2–3

All communication parameters are found on the Setup tabs for each instantiated communication application in PCCU32. Systems are shipped with default settings for communications but may need fine tuning. For additional information, please refer to the *NGC8200 User's Manual*.



NGC Termination Board

Communication Troubleshooting

A new radio or modem system that doesn't communicate is sometimes difficult to troubleshoot because proper operation has never been proven, and all the initial hardware and software settings are suspect. More than one problem can be present, causing component replacement to be an inadequate trouble shooting technique. A checklist follows as an aid.

- Insure base radio is working for other locations.
- Verify Station ID and Device ID matches with WinCCU's ID Manager and is the only device with that ID.
- Verify Baud rate, Stop Bits, Security Code, and Listen Cycle time match in WinCCU and PCCU.
- Verify wiring from the NGC8200 to the Optional Equipment Unit terminal strip and terminal strip to radio. Verify cable from the radio to the antenna.
- Verify J9 and J11 switches on the NGC termination board are in the proper position. (See figure above and table on previous page).

For more information on troubleshooting, see *Chapter 5 Troubleshooting* in the *NGC8200 User's Manual*.

Start-Up Troubleshooting

The NGC is factory calibrated and comes with a standard set of configuration files. Typically the NGC should not require adjustments, however, due to factors outside of our control, i.e. Barometric Pressure, etc., the unit may require some adjustments.

This section is designed for troubleshooting new installation issues only. Detailed troubleshooting techniques and procedures may be found in the *Troubleshooting* section of the *Totalflow NGC User's Manual*. Following successful completion of any of these Troubleshooting techniques, the unit should be calibrated.

Using Peak Find

Many of the Troubleshooting techniques will require use of the *Peak Find* tools. The following provides basic information on how this feature works.

Peak Find is divided into two levels of functionality; *Automatic Peak Find* and *Manual Peak Find*. *Auto Peak Find* basically does everything for you, such as locating and labeling peaks and requires little or no input from the user. *Manual Peak Find* on the other hand requires the user to manually change Carrier Pressures, Inject Time, Backflush Time, etc. If the unit gets in a condition and/or the sample blend being used causes the *Auto Peak Find* to not work properly, you may be required to use *Manual Peak Find* to do some fine tuning.

To use either *Peak Find* function, you must first place the unit in *HOLD*. Once in *HOLD,* select *Peak Find* from the *Analyzer Operation* screen. Please notice that *Manual* check box is grayed out and not available at this level of access. Windows for Carrier Pressures, Purge Time, etc., will be grayed out but will periodically be refreshed to reflect changes during the Auto Peak Find process.

Using Auto Peak Find

Select *Run Auto PF* on the *Peak Find* screen. The unit will typically require 9 or 10 cycles (approximately 50 - 55 minutes) to complete the process. Even though chromatograms are refreshed after each cycle and may be viewed by clicking between Chrom-1 and Chrom-2, the peaks and component labeling will not be correct until the Auto Peak Find process is complete. You should receive a message indicating a successful completion. Acknowledge the message and click the *Re-read* button to make sure that the latest data is being displayed. At this point look at *Chrom-1* and *Chrom-2* to verify that all peaks are accounted for and they are labeled. If you see a problem, see *Manual Peak Find* below.

After verifying that the Chromatograms look correct, close the *Peak Find* screen, put the unit in *Run* mode and allow it to stabilize for 5 or 6 cycles. If no alarms occur during this period, perform a Calibration. Note that some alarms are just Warnings and may not keep you from proceeding with the Calibration. You should be able to tell from the Warning

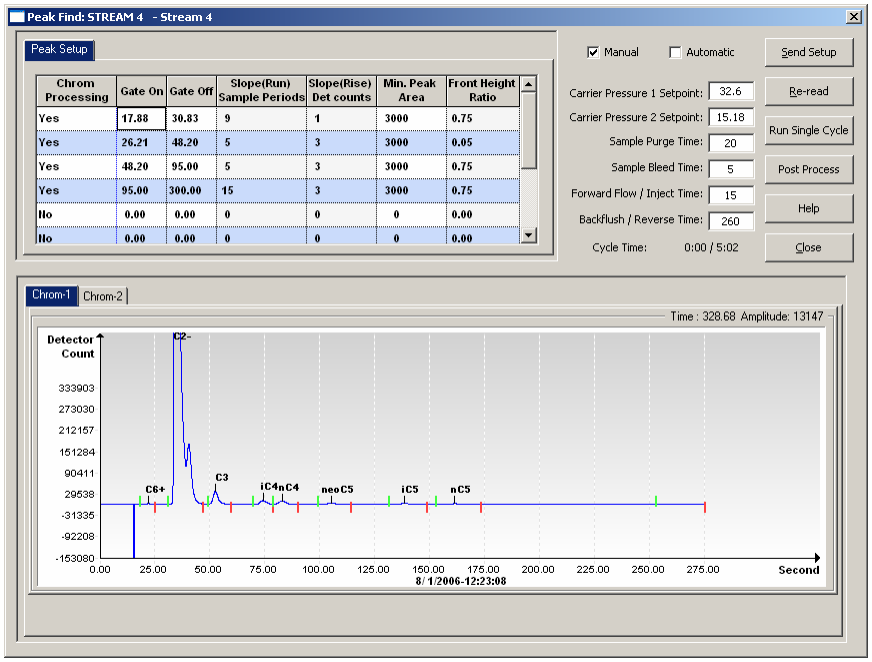
Troubleshooting

description whether to proceed or stop and take care of the Alarm condition.

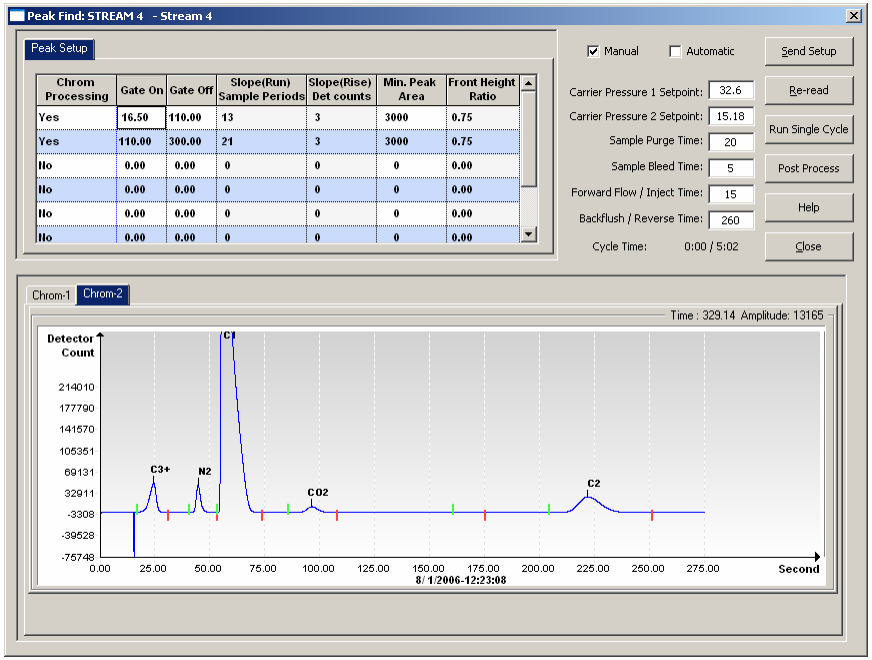
Using Manual Peak Find

From the *Analyzer Operation* screen, click on the *Peak Find* button and check the *Manual* box at the top of the screen. If the *Manual* check box is grayed out, close the *Peak Find* screen, go to the *View* file menu at the top of the screen and select *Factory Mode*. Return to the *Analyzer Operation* screen and click on the *Peak Find* button. You should now be able to check the *Manual* box. (See screen shots on following page).

There is now a *Peak Setup* table and the windows such as Carrier Pressures are not grayed out; meaning they can be changed. There are areas in the *Peak Setup* table such as *Slope (Run)*, *Slope (Rise)*, and *Front Height Ratio* that are not permitted to be changed. The *Gate On*, *Gate Off* and *Minimum Peak Area* can be changed. If you need to make adjustments in the *Peak Setup* table, the *Post Process* feature will reprocess the change without having to run a cycle. Pressure and time/duration changes in the windows require a *Run Single Cycle* to process new data. Click the *Help* button for more information on these parameters.



Peak Find Screen for Chrom 1 (Heavies)



Peak Find Screen for Chrom 2 (Lights)

Troubleshooting Clues

Clue: Unnormalized total is not ±0.5% of 100%

Possibility:
- Carrier pressure set points are out of range. See *Using Peak Find.*
- Peaks are integrated correctly, but not labeled. See *Labeling Peaks.*
- Peaks are incorrectly labeled. See *Labeling Peaks*.

Clue: Gate Markers are located on the side of a peak.

Possibility:
- Front Height Ratio may need refined. See *Integrating Peaks.*
- Gates may need to be added. See *Gating Peaks*.

Clue: Chrom 2, C2 peak time is not eluting around 220 seconds.

Possibility:
- Column 2 Carrier Pressure may not be correct. See *Carrier Pressure Set Point.*

Clue: NC5 peak time is not eluting at approximately 160 seconds.

Possibility:
- Column 1 Carrier Pressure may not be correct. See *Carrier Pressure Set Point.*

Clue: A small peak elutes after NC5 Peak.

Possibility:
- Inject time may be too long. See *Forward Flow Duration*.

Troubleshooting

Clue: Some components are not gated correctly.

Possibility:
- Carrier Pressure set point may be too high or too low. See *Carrier Pressure Set Point*.
- Gate times may be incorrect. See *Gating Peaks.*

Clue: NGC is "processing" unused Streams.

Possibility:
- Unused streams need to be disabled. See *Stream Sequencing-Enable or Disable Streams*.

Troubleshooting Solutions

Oven Temperature Stabilization

The Oven Temperature MUST be stabilized to get good repeatable data. The Oven Temperature is typically stable enough in 30 to 60 minutes to pass diagnostics. This allows the user to proceed with all the required setup information. But, for the oven and other components to fully stabilized, Totalflow recommends that the unit be allowed a burn-in period of 8 hours. The end caps should be installed during this period and naturally during normal processing. Based on ambient temperatures and not having the end caps installed could impede the Oven Temperature from stabilizing at 60° C (140° F).

Carrier Pressure Set Point

The NGC has two column trains, each with its own carrier pressure regulator. Tests show that if nC5 on Column 1 elutes at approximately 160 seconds and C2 on Column 2 elutes at approximately 220 seconds, the unit performs at its best. This is not to say that there may be special applications which may cause these times to be different.

If nC5 and C2 are not within 3 - 4 seconds of these times, you may want to change the carrier pressures. However, changing the carrier pressures will move the other peaks and therefore, you might want to do an *Auto Peak Find*.

To change carrier pressures you must be in *Hold* mode. Click the *Hold* button on the *Operation* screen and wait until the end of cycle. When the unit enters *Hold* mode, click on the *Peak Find* button. If the *Manual* check box at the top of the screen is grayed out, close the *Peak Find* screen and click the *View* menu at the top of the main screen and select *Factory* mode. Return to the *Analyzer Operation* screen and click the *Peak Find* button again and *Manual* mode will be selectable.

Units will vary some from one to another, but a rough rule of thumb, is that 1 PSI change will move the nC5 or C2 peak 10 – 12 seconds. Increase pressure to decrease the time the components elute and decrease pressure to increase the time they elute. After making a pressure change, click *Send Setup* then *Run Single Cycle*. The chromatograms will update at the end of the cycle, typically 5 minutes. Repeat this process until you have the desired results.

NOTE: In the *Manual Peak Find* screen, changes to Gate Times and Peak Labeling may be seen immediately by selecting *Post Process*. All changes in the pressure or times windows at the right of the screen, will be reflected following a *Run Single Cycle*.

Gating Peaks

Gate On and *Gate Off* times in the *Peak Setup* table in the *Manual Peak Find* screen instructs the process when to start and stop looking for peaks. Each Gate On/Gate Off time applies the parameters in its row to the peaks in its time frame. The Gate On time should begin in an area prior to the first component peak and in a relatively flat area on the baseline. Likewise the Gate Off time should be on a flat area and not fall during a component peak.

Make changes in the *Peak Setup* table in the *Peak Find Screen*. *Send Setup*, then *Post Process* to see update chromatograms.

Labeling Peaks

If peaks are integrated correctly, and column pressures are within range, but no labels appear, you may need to label the peaks. Manually label the peaks in the *Peak Find* screen by zooming in on the chrom, place cursor inside of the peak, right click and select *Label Peak*. When the new window appears, select the component for that peak from the drop down window and click the *Label Peak* button. Continue until all peaks are labeled.

Send Setup and select the *Post Process* button and wait for the screen to update the chromatograms.

Forward Flow Duration

A small peak (part of C6+) appearing after the NC5 peak indicates that the *Forward Flow* is too long. It may be necessary to shorten the *Forward Flow Flow*/inject Time. Make small time increment changes to avoid over compensation. Make adjustments to the forward flow time on the *Manual Peak Find* screen, *Send Setup* and run a *Single Cycle*. Repeat as necessary. If Cal Blend component concentrations IC5 and NC5 are similar, the peak areas should be within 3% of each other. If using our standard blend, IC5 and NC5 are approximately 0.1%.

If water is a problem, you may need to increase the *Backflush*/Reverse Time. For additional information, see the *Troubleshooting* Chapter in the *NGC8200 User's Manual*.

Troubleshooting

Stream Sequencing–Enable or Disable Streams

Following initial setup, if a stream was not connected or connected/disconnected after start-up, you may be required to manually enable or disable a stream.

NOTE: *Disable* streams that do not have sample gas connected to them. If a stream (typically stream 4) is a dedicated calibration stream, you may want to disable it or at least remove it from the *Stream Sequence*. Enabling it will display ambiguous data on the *Analyzer Operation* screen because it only displays process stream data.

To *Disable* any streams not in use:

- On *Analyzer Operation* screen, under *Stream Sequence, Stream Enable,* set the value next to the stream to *Disable*.
- Remove unused streams from the *Stream Sequence* by setting the value next to the unused stream to *Stream (none)*.
- When finished, click on the *Send* button.

NOTE: Streams enabled, but removed from the sequence will show *Skip* on the *Analyzer Operation* screen. Streams disabled and removed from the sequence will show *Disabled*.

To *Enable* additional streams:

- *Enable* stream by selecting the value column next to the stream number and changing to *Enable*.
- Under *Stream Sequence* select the value column next to sequence number and select the stream number to add.

ABB Inc.
Totalflow Products
7051 Industrial Blvd.
Bartlesville, Oklahoma 74006

Tel: USA (800) 442-3097
International 001-918-338-4880

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